

Additions to the Opisthobranch Mollusk Fauna of Marin County, California, with Notes on the Biology of Certain Species

by

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Abstract. Seven species of opisthobranch Mollusca from Marin County, California are discussed, and certain aspects of their biology presented. Three species are new additions to the faunistic list of this area; one sighting represents a geographical range extension.

THE OPISTHOBRANCH mollusks of Marin County, California have been extensively documented in numerous reports (STEINBERG, 1960, 1963; MARCUS, 1961, 1964; GOSLINER, 1968; GOSLINER & WILLIAMS, 1970, 1973; WILLIAMS, 1971; GODDARD, 1973; BEHRENS, 1980b; JAECKLE, 1981) in which a total of 74 species have been reported. Since 1977, this aspect of the littoral invertebrate fauna has been intermittently examined, and several species, previously unreported from this area, have been observed. These observations, as well as aspects of the biology of certain species found in Marin County are reported here. Species not previously reported from Marin County are denoted by an *; extension of the geographical range is denoted by a **.

Systematic List of Discussed Species

Subclass Opisthobranchia

Order Nudibranchia

Suborder Doridacea

Family Cadlinidae

Cadlina sparsa (Odhner, 1921)**

Family Aldisidae

Aldisa sanguinea (Cooper, 1863)*

Suborder Dendronotacea

Family Dotidae

Doto kya Marcus, 1961

Suborder Arminacea

Family Janolidae

Janolus barbarensis (Cooper, 1863)*

Janolus fuscus O'Donoghue, 1924

Suborder Aeolidacea

Family Flabellinidae

Flabellina trilineata (O'Donoghue, 1921)

Family Tergipedidae

Tenellia adspersa (Nordmann, 1845)*

Cadlina sparsa (Odhner, 1921)

Two specimens of this eudoridoidean species were collected in a rocky, semi-protected littoral locality, the Frontier Arts Nature Reserve (latitude 37°52'22"N; longitude 122°36'56"W). These collections represent a geographical range extension, as well as an addition to the opisthobranch fauna of Marin County. The previous northernmost occurrence of *Cadlina sparsa* was Monterey Bay, Monterey County, California (BEHRENS, 1980a). The coloration of these specimens differed from previously published accounts. Typically, the rhinophores are light yellow to yellowish-brown in coloration (McDONALD, 1977); however, the rhinophoral coloration of the collected specimens was light brown with numerous black spots on the rhinophoral lamellae. A voucher specimen has been deposited in the invertebrate collection of the California Academy of Sciences bearing the voucher number CASIBP 030954.

Aldisa sanguinea (Cooper, 1863)

Although the geographical range of *Aldisa sanguinea* extends from Coos Bay, Oregon to San Diego, California and in the Gulf of California, Mexico (BERTSCH &

JOHNSON, 1982), this species has not been reported from Marin County. This species has been sighted in two rocky littoral areas, Muir Beach Overlook (latitude 37°52'21"N; longitude 122°36'56"W) and the Frontier Arts Nature Reserve.

Doto kya Marcus, 1961

This dendronotacean species is common in rocky littoral and estuarine habitats of Marin County. Despite the abundance of *Doto kya* in central California, the biology of this species is poorly known. In rocky littoral habitats of Marin County, specimens of *D. kya* have been observed preying upon the leptomedusan hydrozoan *Obelia dichotoma* (Linnaeus, 1758) and the anthomedusan species *Sarsia* sp. *Doto kya*, in estuarine areas of San Francisco Bay, feeds on *O. dichotoma*. The spawn masses of *D. kya*, deposited on the hydrocauli of *O. dichotoma* colonies, have been found in both habitats.

Janolus barbarensis (Cooper, 1863)*

Janolus fuscus O'Donoghue, 1924

GOSLINER (1981, 1982) synonymized the genus *Antiope* Hoyle, 1902, with *Janolus* Bergh, 1884, and reinstated *J. fuscus* as a distinct species. *Janolus barbarensis* and *J. fuscus* have been viewed as a single species for 15 years (GOSLINER, 1982) and, as a result, the geographical ranges of both species have been combined by most authors. GOSLINER (1982) mentioned this range overlap but did not indicate their limits. In Marin County, *J. barbarensis* has been found on wharf pilings at Sausalito, San Francisco Bay (latitude 37°47'N; longitude 122°21'W) and *J. fuscus* has been collected at Muir Beach Overlook and the Frontier Arts Nature Reserve.

Flabellina trilineata (O'Donoghue, 1921)

GOSLINER & GRIFFITHS (1981) synonymized the genus *Coryphella* Gray, 1850, with *Flabellina* Voigt, 1834, due to a lack of genus-specific morphological characters. In Marin County, *Flabellina trilineata* occurs in both estuarine and marine habitats. At the Muir Beach Overlook study site, this species was observed feeding on the anthomedusan hydroid species *Tubularia marina* (Torrey, 1902) and *Sarsia* sp. The specimens of *F. trilineata* selectively preyed upon the tentacles of *T. marina*, leaving the remaining portion of the polyp intact. This feeding selectivity differs from COOPER's (1980) report that *F. trilineata* consumes the entire polyp of *Tubularia crocea* (Agassiz, 1862) in Elkhorn Slough, Monterey County, California.

Tenellia adspersa (Nordmann, 1845)*

Large numbers of *Tenellia adspersa* have been observed on wharf pilings in Sausalito, San Francisco Bay, feeding on *Obelia dichotoma* during May–August, 1982. Although *T. adspersa* has been previously reported from San Fran-

cisco Bay (STEINBERG, 1960, 1963; BEHRENS, 1980b), this is the first reported sighting from Marin County. The examined specimens were small (<5 mm in length) and exhibited a wide variation in the amount of black pigment spots present on the dorsal surface. Eastern Pacific specimens typically possess a light cream body coloration with "a few" black pigment spots on the dorsum (McDONALD, 1977). BROWN (1980), however, reports that British specimens of *T. adspersa* exhibit a variable density in black "speckling." In several specimens collected in Marin County, the black spots were so dense that the dorsum appeared black. Along with these darkly pigmented individuals were collected specimens that exhibited the typical coloration pattern. The radula of a darkly pigmented specimen agrees with the radula of *T. adspersa* as depicted in BROWN (1980).

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